

Amendments to the Claims:

Claims 1 and 19 are amended and claims 20 to 27 are added as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A particle beam system comprising:
a particle source for emitting particles along a beam path;
an objective lens defining a diffraction plane and being
mounted on said beam path downstream of said particle source;

5 a mirror corrector unit including an electrostatic mirror
disposed on said beam path between said particle source and said
objective lens;

said mirror corrector unit further including a magnetic beam
deflector disposed on said beam path so as to be disposed between
10 said particle source and said electrostatic mirror and between
said electrostatic mirror and said objective lens; and,

said magnetic beam deflector being free of dispersion for
each single passthrough of said particles and said magnetic beam
deflector including a plurality of quadrupoles which are so
15 determined that on the entire course of said beam path between a
first-time exit from said magnetic beam deflector and said
objective lens, a maximum of two planes occur conjugated to said
diffraction plane of said objective lens.

2. (Original) The particle beam system of claim 1, wherein said electrostatic mirror defines a mirror plane; and, said diffraction plane of said objective lens is imaged into said mirror plane.

3. (Original) The particle beam system of claim 1, wherein said beam deflector includes at least three outer magnetic sectors and at least two inner magnetic sectors; between said particle source and said electrostatic mirror, two of said outer magnetic sectors and one of said inner magnetic sectors lying between said two
5 outer magnetic sectors are passed through by said particles; and, between said electrostatic mirror and said objective lens, two of said outer magnetic sectors and one of said inner magnetic sectors lying between said last-mentioned two outer magnetic
10 sectors are passed through by said particles.

4. (Original) The particle beam system of claim 3, wherein the magnetic field in said inner magnetic sectors is anti-parallel to the magnetic field direction in said outer magnetic sectors.

5. (Original) The particle beam system of claim 4, wherein said beam deflector is purely magnetic.

6. (Original) The particle beam system of claim 1, wherein said beam deflector effects a deflection symmetrical to a first symmetry plane in a first region thereof and a deflection symmetrical to a second symmetry plane in a second region

5 thereof.

7. (Original) The particle beam system of claim 3, wherein said beam deflector has free drift distances in magnetic field free spaces between said outer and inner magnetic sectors.

8. (Original) The particle beam system of claim 3, wherein said outer magnetic sectors have inlet and outlet edges facing toward said inner magnetic sectors; and, said inlet and outlet edges are inclined to the optical axis of the particle beam.

9. (Original) The particle beam system of claim 3, wherein the deflection angles in each of said magnetic sectors are so selected that a vanishing dispersion occurs after a single passthrough through said beam deflector.

10. (Original) The particle beam system of claim 3, wherein the magnetic fields of all of said magnetic sectors are equal in magnitude.

11. (Original) The particle beam system of claim 6, wherein said particles, which enter said magnetic beam deflector approximately parallel to the optical axis, are stigmatically focused in each of said symmetry planes.

12. (Original) The particle beam system of claim 1, further comprising one of the following mounted between said magnetic beam deflector and said objective lens: one or two magnetic or

electrostatic octupoles and, multipole elements of higher order.

13. (Original) The particle beam system of claim 1, further comprising a stigmator mounted between said particle source and said magnetic beam deflector.

14. (Original) The particle beam system of claim 1, further comprising a field lens between said particle source and said magnetic beam deflector.

15. (Original) The particle beam system of claim 1, further comprising a field lens between said magnetic beam deflector and said objective lens.

16. (Original) The particle beam system of claim 1, further comprising a first field lens between said particle source and said magnetic beam deflector and a second field lens between said magnetic beam deflector and said objective lens.

17. (Original) The particle beam system of claim 14, wherein said field lens is an immersion lens with which the kinetic energy of the particles is increased before entering into said magnetic beam deflector.

18. (Original) The particle beam system of claim 15, wherein said field lens is an immersion lens with which the kinetic energy of the particles is reduced after exiting from said magnetic beam deflector.

19. (Currently Amended) The particle beam system of claim 3,
wherein said objective lens defines an exit end optical axis; one
of said magnetic sectors is closer to said objective lens than
the remaining ones of said magnetic sectors and said one magnetic
5 sector has a side facing away from said objective lens; and,
wherein said system further includes a particle detector disposed
on said side of said one magnetic sector and on opposite lying
sides of said exit end optical axis relative to said
electrostatic mirror; and, said one magnetic sector ~~effecting~~
10 effects a separation of collected particles exiting from a
specimen from the primary particles.

20. (New) A particle beam system having an optical axis and
comprising:

a particle source for emitting particles along a beam path;

an objective lens defining a diffraction plane and being
5 mounted on said beam path downstream of said particle source;

a mirror corrector unit including an electrostatic mirror
disposed on said beam path between said particle source and said
objective lens;

said mirror corrector unit further including a magnetic beam
10 deflector disposed on said beam path so as to be disposed between
said particle source and said electrostatic mirror and between
said electrostatic mirror and said objective lens;

said magnetic beam deflector being free of dispersion for
each single passthrough of said particles and said magnetic beam
15 deflector including a plurality of quadrupoles which are so
determined that on the entire course of said beam path between a

first-time exit from said magnetic beam deflector and said objective lens, a maximum of two planes occur conjugated to said diffraction plane of said objective lens;

20 said magnetic beam deflector having an entry end and a second-time exit therefrom and said magnetic beam deflector defining a first symmetry plane between said entry end and said first-time exit and a second symmetry plane between said first-time exit and said second-time exit; and,

25 said first and second symmetry planes intersecting with said optical axis and said magnetic beam deflector being sufficiently telescopic so as to permit component beams which originate at the intersections of said symmetry planes with said optical axis to run parallel or slightly convergent outside of said magnetic beam
30 deflector.

21. (New) The particle beam system of claim 20, wherein said beam deflector includes at least three outer magnetic sectors and at least two inner magnetic sectors; between said particle source and said electrostatic mirror, two of said outer magnetic sectors
5 and one of said inner magnetic sectors lying between said two outer magnetic sectors are passed through by said particles; and, between said electrostatic mirror and said objective lens, two of said outer magnetic sectors and one of said inner magnetic sectors lying between said last-mentioned two outer magnetic
10 sectors are passed through by said particles.

22. (New) The particle beam system of claim 20, wherein said particles, which enter said magnetic beam deflector approximately

parallel to the optical axis, are stigmatically focused in each of said symmetry planes.

23. (New) The particle beam system of claim 21, wherein said objective lens defines an exit end optical axis; one of said magnetic sectors is closer to said objective lens than the remaining ones of said magnetic sectors and said one magnetic sector has a side facing away from said objective lens; and, wherein said system further includes a particle detector disposed on said side of said one magnetic sector and on opposite lying sides of said exit end optical axis relative to said electrostatic mirror; and, said one magnetic sector effects a separation of collected particles exiting from a specimen from the primary particles.

24. (New) A particle beam system comprising:
a particle source for emitting particles along a beam path;
an objective lens defining a diffraction plane and being mounted on said beam path downstream of said particle source;
a mirror corrector unit including an electrostatic mirror disposed on said beam path between said particle source and said objective lens;
said mirror corrector unit further including a magnetic beam deflector disposed on said beam path so as to be disposed between said particle source and said electrostatic mirror and between said electrostatic mirror and said objective lens;
said magnetic beam deflector being free of dispersion for each single passthrough of said particles and said magnetic beam

deflector including a plurality of quadrupoles which are so
15 determined that on the entire course of said beam path between a
first-time exit from said magnetic beam deflector and said
objective lens, a maximum of two planes occur conjugated to said
diffraction plane of said objective lens;

a first field lens between said particle source and said
20 magnetic beam deflector and a second field lens between said
magnetic beam deflector and said objective lens;

said field lenses each being an immersion lens with which
the kinetic energy of the particles is increased before entering
into said magnetic beam deflector; and,

25 each of said field lenses being an immersion lens with which
the kinetic energy of the particles is reduced after exiting from
said magnetic beam deflector.

25. (New) The particle beam system of claim 24, wherein said
beam deflector includes at least three outer magnetic sectors and
at least two inner magnetic sectors; between said particle source
and said electrostatic mirror, two of said outer magnetic sectors
5 and one of said inner magnetic sectors lying between said two
outer magnetic sectors are passed through by said particles; and,
between said electrostatic mirror and said objective lens, two of
said outer magnetic sectors and one of said inner magnetic
sectors lying between said last-mentioned two outer magnetic
10 sectors are passed through by said particles.

26. (New) The particle beam system of claim 24, wherein said
beam deflector effects a deflection symmetrical to a first

symmetry plane in a first region thereof and a deflection symmetrical to a second symmetry plane in a second region thereof; and, said particles, which enter said magnetic beam deflector approximately parallel to the optical axis, are stigmatically focused in each of said symmetry planes.

27. (New) The particle beam system of claim 25, wherein said objective lens defines an exit end optical axis; one of said magnetic sectors is closer to said objective lens than the remaining ones of said magnetic sectors and said one magnetic sector has a side facing away from said objective lens; and, wherein said system further includes a particle detector disposed on said side of said one magnetic sector and on opposite lying sides of said exit end optical axis relative to said electrostatic mirror; and, said one magnetic sector effects a separation of collected particles exiting from a specimen from the primary particles.